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Application Number	Filed
07/439,093	11/17/89

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United States Patent [19]

Barclay

[11] Patent Number: 5,130,242

[45] Date of Patent: Jul. 14, 1992

[54] **PROCESS FOR THE HETEROTROPHIC PRODUCTION OF MICROBIAL PRODUCTS WITH HIGH CONCENTRATIONS OF OMEGA-3 HIGHLY UNSATURATED FATTY ACIDS**

[75] Inventor: **William R. Barclay**, Boulder, Colo.

[73] Assignee: **Phycotech, Inc.**, Boulder, Colo.

[21] Appl. No.: **580,778**

[22] Filed: **Sep. 11, 1990**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 439,093, Nov. 17, 1989, abandoned, which is a continuation-in-part of Ser. No. 241,410, Sep. 7, 1988, abandoned.

[51] **Int. Cl.**[5] **C12P 7/64**; C12N 1/00; A23B 7/10; A23D 9/00

[52] **U.S. Cl.** **435/134**; 435/243; 435/946; 426/49; 426/53; 426/601

[58] **Field of Search** 435/134, 243, 946; 426/49, 53, 601

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[57] **ABSTRACT**

A process for the heterotrophic or predominantly heterotrophic production of whole-celled or extracted microbial products with a high concentration of omega-3 highly unsaturated fatty acids, producible in an aerobic culture under controlled conditions using biologically pure cultures of heterotrophic single-celled fungi microorganisms of the order Thraustochytriales. The harvested whole-cell microbial product can be added to processed foods as a nutritional supplement, or to fish and animal feeds to enhance the omega-3 highly unsaturated fatty acid content of products produced from these animals. The lipids containing these fatty acids can also be extracted and used in nutritional, pharmaceutical and industrial applications.

10 Claims, 9 Drawing Sheets